

WHAT IS CLAIMED IS:

1. An optical information-recording medium, for which recording is performed by irradiating a recording film with a laser beam to change the reflectivity or the optical phase of the recording film, comprising:
  - a first transparent substrate through which the laser beam enters;
  - a first information-recording layer deposited on the first transparent substrate;
  - 10 a first reflection film formed on the first information-recording layer;
  - an intermediate layer deposited on the first reflection film;
  - a second information-recording layer formed on the intermediate layer;
  - 15 a second reflection film deposited on the second information-recording layer; and
  - a second substrate provided on the second reflection film,
  - 20 wherein each of the first and the second information-recording layers is formed such that recording films are sandwiched between first and second dielectric layers, and
  - wherein the recording film of each of the first and second information-recording layers has a main composition represented by  $(\text{GeTe})_x\text{Sb}_{2-y}\text{In}_y\text{Te}_3$ , and its composition ratio is within ranges of  $0.04 \leq y < 2$  and  $4 \leq$

$x \leq 8$ .

2. An optical information-recording medium according to claim 1, wherein the thickness of the recording film is equal to or greater than 6 nm, and equal  
5 to or smaller than 13 nm.

3: An optical information-recording medium according to claim 2, wherein the first reflection film has a thickness of about 10 nm.

4. An optical information-recording medium, for  
10 which recording is performed by irradiating a recording film with a laser beam to change the reflectivity or the optical phase of the recording film, comprising:

a transparent substrate through which the laser beam enters;

15 an information-recording layer, being formed on the transparent substrate and including a first dielectric film deposited on the transparent substrate, a recording film deposited on the first dielectric film, and a second dielectric film deposited on the recording film; and

20 a reflection film formed on the second dielectric film,

wherein the recording film has a main composition represented by  $(\text{GeTe})_x\text{Sb}_{2-y}\text{In}_y\text{Te}_3$ , and its composition ratio is within ranges of  $0.04 \leq y < 2$  and  $4 \leq x \leq 8$ .

25 5. An optical information-recording medium according to claim 4, wherein the thickness of the recording film is equal to or greater than 6 nm, and equal

to or smaller than 13 nm.

6. An optical information-recording/reproduction apparatus comprising:

an optical information-recording medium;

5 an optical head for irradiating the optical information-recording medium with a laser beam; and

a drive mechanism for driving the optical head to irradiate, with the laser beam, a desired position on the optical information-recording medium,

10 wherein the optical information-recording medium comprises:

a first transparent substrate through which the laser beam enters,

a first information-recording layer deposited  
15 on the first transparent substrate,

a first reflection film formed on the first information-recording layer,

an intermediate layer deposited on the first reflection film,

20 a second information-recording layer formed on the intermediate layer,

a second reflection film deposited on the second information-recording layer, and

a second substrate provided on the second  
25 reflection film,

wherein each of the first and the second information-recording layers is formed such that recording

films are sandwiched between first and second dielectric layers, and

wherein the recording film of each of the first and second information-recording layers has a main composition represented by  $(\text{GeTe})_x\text{Sb}_{2-y}\text{In}_y\text{Te}_3$ , and its composition ratio is within ranges of  $0.04 \leq y < 2$  and  $4 \leq x \leq 8$ .

7. An optical information-recording/reproduction apparatus according to claim 6, wherein the thickness of the recording film is equal to or greater than 6 nm, and equal to or smaller than 13 nm.

8. An optical information-recording/reproduction apparatus according to claim 7, wherein the first reflection film has a thickness of about 10 nm.

9. An optical information-recording/reproduction apparatus comprising:

an optical information-recording medium;  
an optical head for irradiating the optical information-recording medium with a laser beam; and  
a drive mechanism for driving the optical head to irradiate, with the laser beam, a desired position on the optical information-recording medium,

wherein the optical information-recording medium comprises:

a transparent substrate through which the laser beam enters,  
an information-recording layer, being formed on

the transparent substrate and including a first dielectric film deposited on the transparent substrate, a recording film deposited on the first dielectric film, and a second dielectric film deposited on the recording film, and

5                   a reflection film formed on the second dielectric film,

                  wherein the recording film has a main composition represented by  $(\text{GeTe})_x\text{Sb}_{2-y}\text{In}_y\text{Te}_3$ , and its composition ratio is within ranges of  $0.04 \leq y < 2$  and  $4 \leq x \leq 8$ .

10                  10. An optical information-recording/reproduction apparatus according to claim 9, wherein the thickness of the recording film is equal to or greater than 6 nm, and equal to or smaller than 13 nm.